

PATENT SPECIFICATION



DRAWINGS ATTACHED

842596

Inventors:- FREDERICK JOHN BREWER and HUGH NEVIL BALLANTYNE

Date of filing Complete Specification: Sept. 10, 1956.

Application Date: Sept. 9, 1955. No. 25875/55.

Complete Specification Published: July 27, 1960.

Index at Acceptance:- Classes 51(1), BA8D; and 75(1), TA9.

International Classification:- F23f.

COMPLETE SPECIFICATION

Space Heating Gas Burner for Direct Overhead Installation

We, PARKINSON COWAN LIMITED,
(formerly known as Parkinson & Cowan
Limited) of Terminal House, 52, Grosvenor
Gardens, London, S.W.1., a British
Company, do hereby declare the inven-
5 tion, for which we pray that a patent
may be granted to us, and the method by
which it is to be performed, to be
particularly described in and by the
10 following statement:-

A type of space heating gas burner
has recently been developed, the burner
consisting of an enclosing housing
closed at the bottom by a perforated
15 plaque or plaques and having its own
gas and air inlets, the gas and air
mixture passing through the plaque or
plaques and being burnt on the under
surface thereof (such a gas burner will
20 hereinafter be referred to as a "gas
burner of the type described"). For
optimum results the plaques should have
low conductivity and low specific heat
so that they rise to a high temperature,
25 and in practice they are normally made
of ceramic material. A suitable form
of plaque (or burner element, as it is
there called) is described in Patent
Specification No. 700,559.

30 Gas burners of the type described may
be used in various ways for providing
radiant heat from above head level.
For example, one type of fitting for a
burner of the type described is adapted
35 to be secured to the wall of a building
the burner being tilted at a consider-
able angle, so that the plaque or
plaques are perhaps 45° (or even more)
from the horizontal, the effect being
40 to throw the radiant heat outwardly
into the room or other place to be
heated.

On the other hand, when a gas burner
of the type described is used for a
45 directly overhead installation (i.e. an

installation which is intended to heat
the area directly below it) the plaque
or plaques have (prior to the present
invention) been arranged horizontally.
If one burner is not sufficient to
50 give adequate heat, assemblies of
burners have been used, each burner
having a separate gas supply thereto.
In one such assembly there are four
burners side-by-side with a central
55 flue outlet (between the two centre
burners) and in another such assembly
there are six such burners, again with
a central flue outlet. It will be
appreciated that, in the case of the
60 4-burner assembly, the products of
combustion from each of the end burners
must pass across the face of the
adjacent centre burner on the way to
the flue outlet. In the case of the
65 6-burner assembly the products of
combustion from the end burners must
pass across the face of two burners
before reaching the central flue out-
let and the products of combustion
70 from the burners adjacent the end
burners must pass across the face of
one burner before reaching the central
flue outlet.

According to our invention, we
75 provide a gas burner assembly adapted
to be mounted as a directly overhead
installation and comprising more than
two burners of the type described, the
arrangement being such that the pro-
ducts of combustion from each burner
80 can reach a flue outlet without passing
across the face of another burner.

In one form of the invention the
burners, instead of being arranged
85 side-by-side in a horizontal plane,
are each tilted round a horizontal
axis; the axes round which the
burners are tilted are parallel with
each other, and the result of the
90

[Price 3s. 6d.]

Price 50p

Printed by the Patent Office

arrangement is that spaces are left between the burners so that the products of combustion of each burner can pass upwardly between that burner and the next burner.

In an alternative arrangement, a flue outlet may be provided between each pair of burners, for example one between the first and second burner in an assembly, one between the third and fourth burner, and so on; or a flue outlet may be left between each burner and the next. With the arrangements described in this paragraph the burners may be allowed to remain horizontal.

In yet another arrangement, three or four burners may be arranged round a central flue outlet, the burners being tilted upwardly towards the flue outlet. Where the burners are tilted, we prefer at the present time an angle of about 10° from the horizontal.

In the accompanying drawings -

Fig. 1 is a plan of one form of a gas burner of the type described;

Fig. 2 is a sectional elevation to illustrate a form of assembly of such gas burners, as used for a directly overhead installation, such as was used prior to this invention;

Fig. 3 is a side view, with part of the surrounding hood removed, of a gas burner assembly according to the invention;

Fig. 4 is a sectional side elevation of another form of the invention;

Fig. 5 is a plan and Fig. 6 is a sectional side elevation of a further form of the invention; and

Fig. 7 is a perspective view, with surrounding hood removed, of another form of the invention.

Figs. 3 to 7 are all diagrammatic in character, and are intended to show the arrangement of burners and flues, all details of the burners and connecting pipes etc. being omitted, as these details do not form any part of the invention.

A typical gas burner 10 of the type described is illustrated in Figs. 1 and 2. It consists of an enclosing housing 11 closed at the bottom by a perforated ceramic plaque 12 or a plurality of such plaques arranged side by side. The gas is admitted through an inlet pipe 13 and, after admixture with air entering from an air inlet 14, passes into the housing 11 and through the plaque or plaques 12 where it is burnt on the underside of the plaque or plaques. The constructional details of the burner 10 form no part of the present invention provided that the burner is a gas burner of the type

described, as herein defined.

Fig. 2 illustrates a manner in which such gas burners were mounted for a directly overhead installation, prior to our invention. In that figure are shown six burners 10 arranged side by side with a central flue 15 through which all the products of combustion escape. A depending hood 16 surrounds the space below the burners 10, the purpose of this hood being primarily to prevent air currents from extinguishing the flame at the burners.

Fig. 3 illustrates one form of gas burner assembly according to the present invention. In this arrangement each of the burners 10 is tilted at an angle of 10° so that spaces 17 are left between adjacent burners to act as flue outlets for the products of combustion from the burners. The hood 16 can be made to surround all the burners 10 and to be carried upwards into a central common flue outlet 18.

In Fig. 4 a modified arrangement is shown in which six burners 10 are arranged in pairs; in the drawing the burners 10 are shown as being horizontal with a flue outlet between each pair, but each burner could, of course, be tilted towards its adjacent flue outlet.

In the arrangement shown in Figs. 5 and 6 four burners 10 are used, these being tilted towards the centre where the hood 16 is carried up into a common flue outlet 18.

In Fig. 7 the burners 10 are shown as arranged in two banks of three, thus forming three pairs of burners each tilted towards a flue outlet 17, this outlet consisting of the space between the pair of burners. No surrounding hood is shown in Fig. 7, but as in Fig. 3, a surrounding hood may be provided which is carried up into a common flue outlet for the three individual flue outlets 17.

WHAT WE CLAIM IS:-

1. A gas burner assembly adapted to be mounted as a directly overhead installation and comprising more than two gas burners of the type described, the arrangement being such that the products of combustion from each burner can reach a flue outlet without passing across the face of another burner.

2. A gas burner assembly according to claim 1, wherein all the burners in the assembly are tilted round a horizontal axis, the axes round which the burners are tilted being parallel with each other, with the result that spaces are left between the burners so that

the products of combustion of each burner can pass upwardly between that burner and the next burner.

3. A gas burner assembly according to claim 1, wherein a flue outlet is provided between each pair of burners or between each burner and the next in the assembly.

4. A gas burner assembly according to claim 3, wherein each burner is tilted upwardly towards its flue outlet.

5. A gas burner assembly according to claim 1, the assembly comprising three or four burners arranged round a central flue outlet, the burners being tilted upwardly towards the central flue outlet.

6. A gas burner assembly according to any one of the preceding claims wherein each of the burners is tilted at an angle of about 100° from the horizontal.

7. A gas burner assembly constructed and arranged substantially as shown in Fig. 3, Fig. 4, Figs. 5 and 6 or Fig. 7 of the accompanying drawings and described with reference thereto.

MEWBURN, ELLIS & CO.,

70/72, Chancery Lane,
London, W.C.2.

CHARTERED PATENT AGENTS.

PROVISIONAL SPECIFICATION

No. 25875 A.D. 1955

Space Heating Gas Burner for Direct Overhead Installation

We, PARKINSON & COWAN LIMITED, of Terminal House, 52, Grosvenor Gardens, London, S.W.1., a British Company, do hereby declare this invention to be described in the following statement:-

Space heating gas burners have recently been developed in which the gas, after admixture with air, is passed through a perforated ceramic plaque or a plurality of such plaques arranged side by side, and is burnt on the surface of the plaque or plaques (such gas burners will hereinafter be referred to as "gas burners of the type described"). For optimum results the plaques should have low conductivity and low specific heat so that they rise to a high temperature, and in practice they are normally made of ceramic material. A suitable form of plaque (or burner element, as it is there called) is described in Patent Specification No. 700,559.

When a gas burner of the type described is used for a directly overhead installation (i.e. an installation which is intended to heat the area directly below it) the plaque or plaques are horizontal, and the gas/air mixture passes downwardly through the perforations and is burnt on the under surface. If one burner is not sufficient to give adequate heat, assemblies of burners are used, each burner having a separate gas supply thereto. In one such assembly there are four burners side-by-side with a central flue outlet

(between the two centre burners) and in another such assembly there are six such burners, again with a central flue outlet. It will be appreciated that, in the case of the 4-burner assembly the products of combustion from each of the end burners must pass across the face of the adjacent centre burner on the way to the flue outlet. In the case of the 6-burner assembly the products of combustion from the end burners must pass across the face of two burners before reaching the central flue outlet and the products of combustion from the burners adjacent the end burners must pass across the face of one burner before reaching the central flue outlet.

According to our invention, we provide a gas burner assembly intended for a directly overhead installation and comprising more than two burners of the type described, the arrangement being such that the products of combustion from each burner can reach the flue outlet without passing across the face of another burner.

In one form of the invention the burners instead of being arranged side-by-side in a horizontal plane are each tilted round a horizontal axis running through the centre of the burner; the axes round which the burners are tilted are parallel with each other, and the result of the arrangement is that spaces are left between the burners so that the products of combustion of each

burner can pass upwardly between that burner and the next burner.

5 In an alternative arrangement, a flue outlet may be provided between each pair of burners, one between the first and second burner in an assembly, one between the third and fourth burner, and so on; or a space may be left between each burner. With the arrangements described
10 in this paragraph the burners may be allowed to remain horizontal, although we prefer that each burner should be tilted upwardly towards its flue outlet.

15 In yet another arrangement, three or four burners may be arranged round a

central flue outlet, the burners being tilted upwardly towards the flue outlet.

Where the burners are tilted, we prefer at the present time an angle of about 10° from the horizontal.

20

MEWBURN, ELLIS & CO.,

70/72, Chancery Lane,
London, W.C.2.

CHARTERED PATENT AGENTS.

Printed in England by Her Majesty's Stationery Office - 1960.
Published at The Patent Office, 25, Southampton Buildings, London, W.C.2.
from which copies may be obtained.

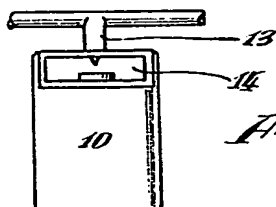


Fig. 1.

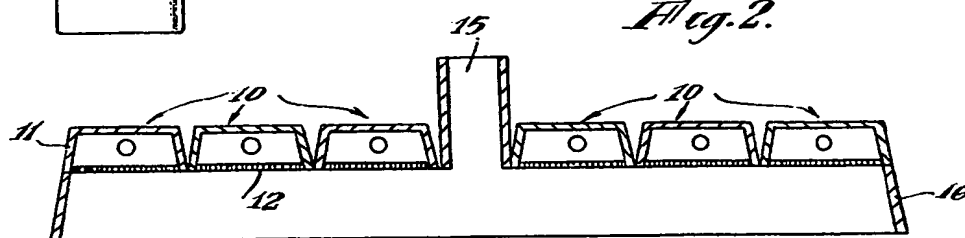


Fig. 2.

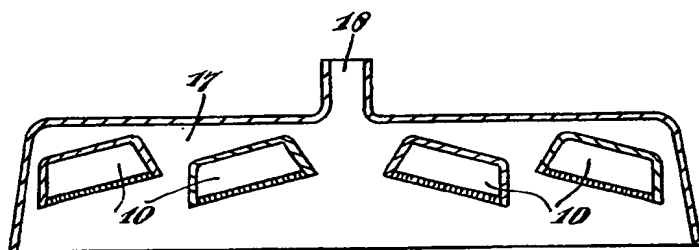


Fig. 3.

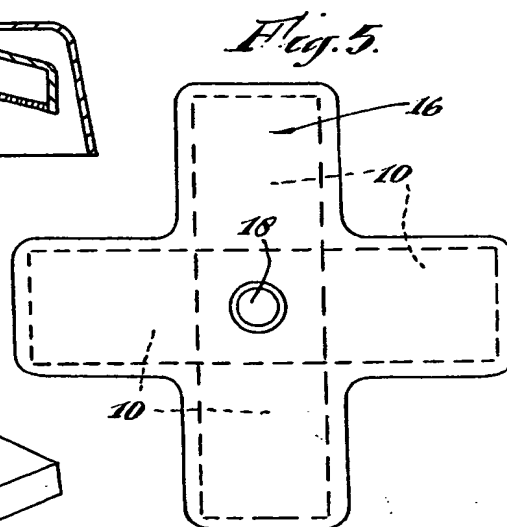


Fig. 5.

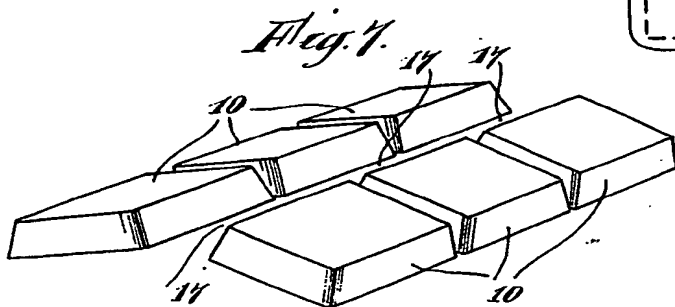


Fig. 4.

Fig. 6.

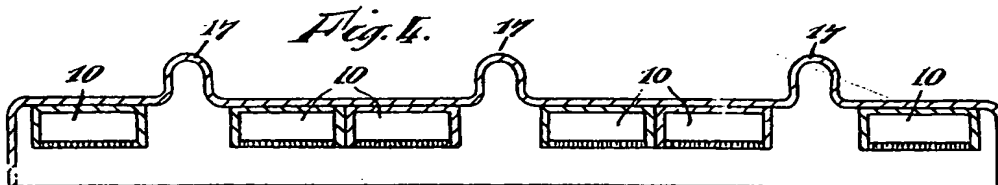
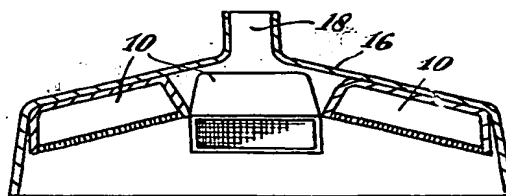


Fig. 7.

This Page Blank (uspto)